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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/555,268	11/01/2005	Xuejun Zhang	CN 030010	7822
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EXAMINER				
TIMORY, KABIR A				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/555,268

Applicant(s)

ZHANG ET AL.

Examiner

KABIR A. TIMORY

Art Unit

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 November 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)
- Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. **Claims 1 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Hirata et al. (US 20010043642).**

Regarding claims 1 and 12:

As shown in figures 1-8, Hirata et al. disclose a circuit for use in a CDMA based communication system that has a receiver for receiving information intended for the system, via a plurality of dedicated channels (see figure 1), the information including multiple pilots from at least two of the channels, the circuit comprising:

- a comparator (7 in figure 1) that compares the powers of the multiple pilots from the plurality of dedicated channels (common pilot channel and individual channel in figure 4) to one another and outputs a pilot with the largest power level (par 0055, lines 1-9, par 0056, lines 1-9); and
- a channel estimation circuit (9 in figure 1) that is configured to perform channel estimation based on the pilot with the largest power level to derive associated channel parameters (par 0055, lines 1-9, par 0056, lines 1-9, par 0058, lines 1-9).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2-11 and 13-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirata et al. in view of Vasic et al. (US 6178194).

Regarding claim 2:

Hirata et al. further disclose a circuit for use in a CDMA based communication system that has a receiver for receiving information intended for the system, via a plurality of dedicated channels, the information including multiple pilots from at least two of the channels, the circuit comprising:

- a channel estimation circuit(9 in figure 1) that is configured to perform channel estimation on each of the dedicated channels, via each of which a pilot is received by the system, to derive channel parameters associated with each channel (par 0055, lines 1-9, par 0056, lines 1-9, par 0058, lines 1-9).

Hirata et al. disclose all of the subject matter as described above except for specifically teaching a combining circuit that is configured to combine all the channel parameters to derive final channel parameters.

However, Vasic et al. in the same field of endeavor teach a combining circuit (30 in figure 3) that is configured to combine all the channel parameters to derive final

channel parameters (col 6, lines 39-45, col 10, lines 23-39). Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to use a combiner as taught by Vasic et al. to modify the system and method of Hirata et al. in order to obtain a combined pilot power and noise variance estimate for the system and to combine the path signals in a direction in which the signal /interference ratio becomes maximum.

Regarding claims 8 and 13:

As shown in figures 1-8, Hirata et al. disclose a CDMA based communication system, comprising:

- a receiver (10 in figure 2) that is configured to receive information intended for the mobile terminal (10 in figure 2), via a plurality of dedicated channels (see figure 2), the information including multiple pilots from at least two of the channels (common pilot channel and individual channel in figure 4);
- a channel estimation (9 in figure 1) circuit that is configured to perform channel estimation on each of the dedicated channels, via each of which a pilot is received by the system, to derive channel parameters associated with each channel (par 0055, lines 1-9, par 0056, lines 1-9, par 0058, lines 1-9).

Hirata et al. disclose all of the subject matter as described above except for specifically teaching a combining circuit that is configured to combine all the channel parameters to derive final channel parameters for outputting; and a demodulator that is configured to demodulate the information intended for the system, based on at least an output of the combining circuit, to retrieve user data.

However, Vasic et al. in the same field of endeavor teach a combining circuit (30 in figure 3) that is configured to combine all the channel parameters to derive final channel parameters for outputting (col 6, lines 39-45, col 10, lines 23-39); and a demodulator (60 in figure 2) that is configured to demodulate the information intended for the system, based on at least an output of the combining circuit (see figure 2), to retrieve user data (col 6, lines 39-45). Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to use a combiner and a demodulator as taught by Vasic et al. to modify the system and method of Hirata et al. in order to obtain a combined pilot power and noise variance estimate for the system and to combine the path signals in a direction in which the signal /interference ratio becomes maximum and to determine the most probable information train.

Regarding claims 3 and 14:

Hirata et al. disclose all of the subject matter as described above except for specifically teaching a demodulator that demodulates the information intended for the system to retrieve user data.

However, Vasic et al. in the same field of endeavor teach a demodulator (60 in figure 2) that demodulates the information intended for the system to retrieve user data (col 6, lines 39-45). Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to use a demodulator as taught by Vasic et al. to modify the system and method of Hirata et al. in order to determine the most probable information train.

Regarding claims 4 and 15:

Hirata et al. further disclose:

- a comparator (7 in figure 1) for comparing the powers amplitudes of the parameters to one another to output the largest power amplitude, the comparator making the comparison if the control signal indicates that the evaluation result is not greater than the threshold value (par 0055, lines 1-9, par 0056, lines 1-9);

Hirata et al. disclose all of the subject matter as described above except for specifically teaching a detection circuit that is configured to evaluate the power amplitudes of the parameters to obtain an evaluation result and compare the evaluation result against a predetermined threshold value to generate a control signal; and wherein the combining circuit combines all the channel parameters if the control signal indicates that the evaluation result is greater than the threshold value.

However, Vasic et al. in the same field of endeavor teach a detection circuit that is configured to evaluate the power amplitudes of the parameters to obtain an evaluation result and compare the evaluation result against a predetermined threshold value to generate a control signal (col 3, lines 14-32, col 4, lines 21-53, col 6, lines 30-45); and wherein the combining circuit (30 in figure 2, 106 in figure 3) combines all the channel parameters if the control signal indicates that the evaluation result is greater than the threshold value (col 6, lines 39-45, col 10, lines 23-39). Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to use a combiner and a detector as taught by Vasic et al. to modify the system and method of Hirata et al. in order to determine the most probable information train and to detect channel measurements such pilot power measurements.

Regarding claims 5, 11, and 16:

Hirata et al. disclose all of the subject matter as described above except for specifically teaching wherein the detection circuit evaluates the power amplitudes by calculating a power difference between each pair of the parameters for all possible combinations of the parameters and selecting a maximum power difference as the evaluating result.

However, Vasic et al. in the same field of endeavor teach wherein the detection circuit evaluates the power amplitudes by calculating a power difference between each pair of the parameters for all possible combinations of the parameters and selecting a maximum power difference as the evaluating result (col 3, lines 14-32, col 4, lines 21-53, col 6, lines 30-45). Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to use a detector as taught by Vasic et al. to modify the system and method of Hirata et al. in order to determine the most probable information train and to detect channel measurements such pilot power measurements.

Regarding claims 6 and 17:

Hirata et al. disclose all of the subject matter as described above except for specifically teaching a demodulator that demodulates the information intended for the system, based on an output from one of the comparator and the combining circuit, to retrieve user data.

However, Vasic et al. in the same field of endeavor teach a demodulator (60 in figure 2) that demodulates the information intended for the system (col 6, lines 39-45), based on an output from one of the comparator and the combining circuit (figure 2

shows that the decoder 60 is decoding (demodulating) the received signal based on the combiner 30) (30 in figure 2), to retrieve user data. Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to use a a modulator and a combiner as taught by Vasic et al. to modify the system and method of Hirata et al. in order to obtain a combined pilot power and noise variance estimate for the system and to combine the path signals in a direction in which the signal /interference ratio becomes maximum and to determine the most probable information train.

Regarding claim 7:

As shown in figures 1-8, Hirata et al. disclose a CDMA based communication system, comprising:

- a receiver (10 in figure 2) that receives information intended for the system, via a plurality of dedicated channels (see figure 2), the information including multiple pilots from at least two of the channels (common pilot channel and individual channel in figure 4);
- a comparator (7 in figure 1) that compares the powers of the multiple pilots to one another and outputs a pilot with the largest power level (par 0055, lines 1-9, par 0056, lines 1-9);
- a channel estimation (9 in figure 1) circuit that is configured to perform channel estimation based on the pilot with the largest power level to derive associated channel parameters (par 0055, lines 1-9, par 0056, lines 1-9, par 0058, lines 1-9).

Hirata et al. disclose all of the subject matter as described above except for specifically teaching a demodulator that demodulates the information intended for the system, based on the associated channel parameters, to retrieve user data.

However, Vasic et al. in the same field of endeavor teach a demodulator (60 in figure 2) that demodulates the information intended for the system, based on the associated channel parameters, to retrieve user data (col 6, lines 39-45). Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to use a demodulator as taught by Vasic et al. to modify the system and method of Hirata et al. in order to determine the most probable information train.

Regarding claim 9:

Hirata et al. disclose all of the subject matter as described above except for specifically teaching wherein the combining circuit combines all the channel parameters by performing arithmetic addition on these channel parameters.

However, Vasic et al. in the same field of endeavor teach wherein the combining circuit combines all the channel parameters by performing arithmetic addition on these channel parameters (30 in figure 3, col 6, lines 39-45, col 10, lines 23-39). Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to use a combiner as taught by Vasic et al. to modify the system and method of Hirata et al. in order to obtain a combined pilot power and noise variance estimate for the system and to combine the path signals in a direction in which the signal /interference ratio becomes maximum.

Regarding claim 10:

Hirata et al. further disclose

- a comparator (7 in figure 1) for comparing the powers amplitudes of the parameters to one another to output the largest power amplitude, the comparator making the comparison if the control signal indicates that the evaluation result is not greater than the threshold value (par 0055, lines 1-9, par 0056, lines 1-9).

Hirata et al. disclose all of the subject matter as described above except for specifically teaching a detection circuit that is configured to evaluate the power amplitudes of the parameters to obtain an evaluation result and compare the evaluation result against a predetermined threshold value to generate a control signal; and wherein the combining circuit combines all the channel parameters if the control signal indicates that the evaluation result is greater than the threshold value; wherein the demodulator demodulates the information intended for the system, based on an output from one of the comparator and the combining circuit, to retrieve user data.

However, Vasic et al. in the same field of endeavor a detection circuit that is configured to evaluate the power amplitudes of the parameters to obtain an evaluation result and compare the evaluation result against a predetermined threshold value to generate a control signal (col 3, lines 14-32, col 4, lines 21-53, col 6, lines 30-45); and wherein the combining circuit (30 in figure 2, 106 in figure 3) combines all the channel parameters if the control signal indicates that the evaluation result is greater than the threshold value (col 6, lines 39-45, col 10, lines 23-39); wherein the demodulator (60 in figure 2) demodulates the information intended for the system, based on an output from one of the comparator and the combining circuit, to retrieve user data (col 6, lines 39-

45). Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to use a combiner, a detector, and a demodulator as taught by Vasic et al. to modify the system and method of Hirata et al. in order to determine the most probable information train and to detect channel measurements such pilot power measurements.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KABIR A. TIMORY whose telephone number is (571)270-1674. The examiner can normally be reached on 6:30 AM - 3:00 PM Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shuwang Liu can be reached on 571-272-3036. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

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/Kabir A Timory/

Examiner, Art Unit 2611

/Shuwang Liu/

Supervisory Patent Examiner, Art Unit 2611